GENERAL MECHANICAL SYSTEM REQUIREMENTS

(***This Section is Entirely Unique to Massachusetts***)

3613.1 GENERAL

3613.1.1 Scope: The provisions of 780 CMR 3613.0 shall govern the installation of mechanical systems not specifically addressed elsewhere in 780 CMR 36.

780 CMR 3613.2 APPROVAL

3613.2.1 Heating and cooling appliances: Fossil-fueled heating and cooling appliances shall be listed and bear the label of an approved agency in accordance with the requirements of 527 CMR or 248 CMR as applicable; other heating and cooling appliances not under the jurisdictional control of 527 CMR or 248 CMR shall be provided with listing labeling information as set forth in 780 CMR 3613.3.1, 3613.3.2, or 3613.3.3 as applicable or otherwise be approved by the BBRS when such approval is necessary.

Note: for solid fuel-burning appliances, see 780 CMR 3610.

780 CMR 3613.3 LABELING OF EQUIPMENT NOT UNDER THE CONTROL OF 527 CMR OR 248 CMR

3613.3.1 General: All appliances shall bear a permanent and legible factory-applied label which shall include the following information:

1. Name or trademark of the manufacturer.
2. The model and serial number.
3. Identity of the agency certifying compliance of equipment with approved standards.
4. Clearances from combustible construction for heat-producing appliances.

3613.3.2 Fuel-burning appliances: The listing and label for fuel-burning appliances, except wood stoves and fireplaces (for solid fuel-burning appliances and fireplaces see 780 CMR 3610.1), shall also indicate:

1. The type of fuel approved for use with the appliance.
2. The input or output ratings.
3. Instructions for the lighting operation and shut off of the appliance.

3613.3.3 Other than fuel-burning appliances: When the design, installation and maintanence of other than fuel-burning appliances falls under the jurisdiction of 780 CMR, the listing and label for such appliances shall also indicate:

1. The output rating in Btu/h or kw.
2. The electrical rating in volts, amperes (or watts) and, for other than single phase, the number of phases.
3. The electrical rating in volts, amperes or watts of each field-replaceable electrical component.
4. Amount and type of refrigerant, and factory test pressures or pressures applied for heat pumps and refrigeration cooling equipment.

780 CMR 3613.4 TYPE OF FUEL

3613.4.1 Appliances: Each appliance shall be designed for use with the type of fuel to which it is to be connected. Appliances shall not be converted from fuel specified on the rating plate for use with a different fuel without conforming to the applicable requirements of 527 CMR or 248 CMR for oil or gaseous fuels respectivley or otherwise securing approval from the BBRS for other types of appliances.

780 CMR 3613.5 APPLIANCE ACCESS

1305.1 Appliance access for inspection service, repair and replacement: Fossil fueled appliances shall conform to the access requirements set fort in 527 CMR or 248 CMR as applicable; additionally, all appliances shall be accessible for inspection, service, repair and replacement without removing permanent construction. In the absence of manufacturer's

listing/installation requirements, thirty inches (762 mm) of working space and platform shall be provided in front of the control side to service an appliance not otherwise under the jurisdictional control of 527 CMR or 248 CMR .

Note: solid-fuel burning appliances shall comply with the applicable requirements of 780 CMR 3610.

780 CMR 3613.6 CLEARANCES FROM COMBUSTIBLE CONSTRUCTION

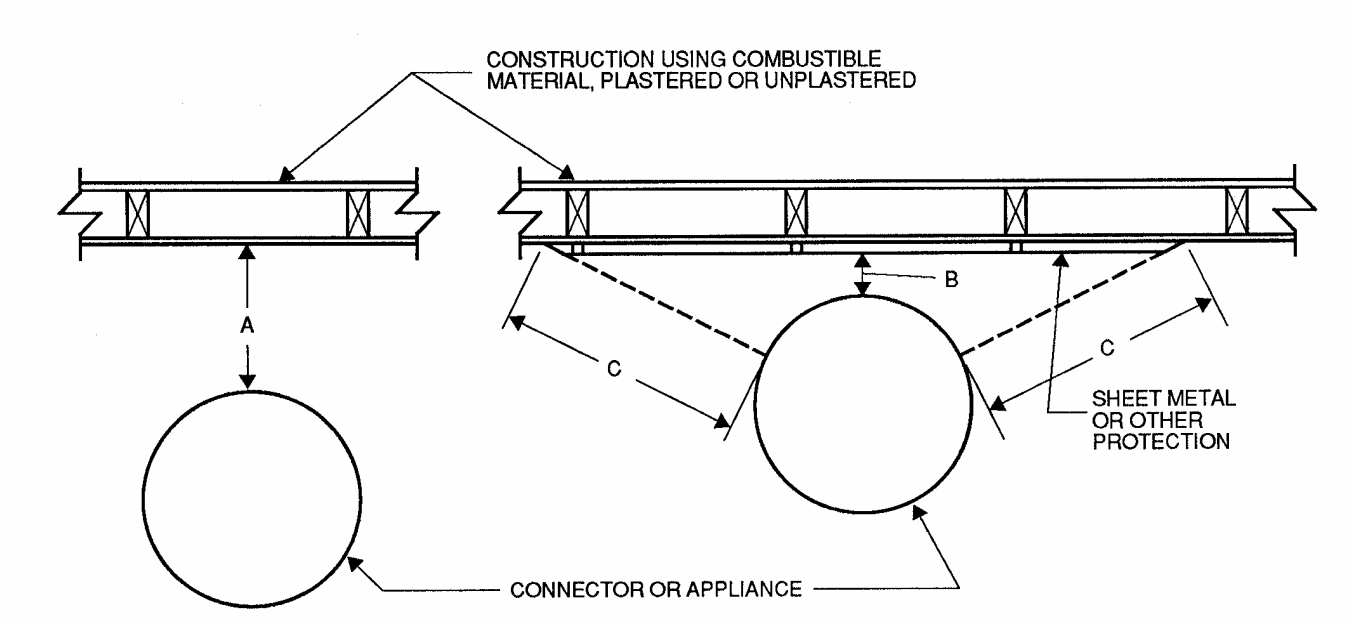
1. Not less than one-inch (25 mm) air space shall be provided between the protection and combustible wall surface.
2. Air circulation shall be provided by having edges of the wall protection open at least one inch (25 mm).
3. If the wall protection is mounted on a single flat wall away from corners, air circulation shall be provided by having the bottom and top edges, or the side and top edges open at least one inch (25 mm).
4. Wall protection covering two walls in a corner shall be open at the bottom and top edges at least one inch (25 mm).

3613.6.1 Appliance clearance: Appliances shall comply with the clearance requirements of 527 CMR or 248 CMR as applicable or: if not under the jurisdictional control of 527 CMR or 248 CMR shall have clearances from combustible materials in accordance the manufacturer's listing requirements or in the absence of such information, in accordance with Figure 3613.6.1 and Tables 3613.6.1a and 3613.6.1b as applicable. Forms of protection with ventilated air space shall conform to the following requirements:

780 CMR 3613.7 APPLIANCE INSTALLATION

3613.7.1 General: Fossil fuel-fired appliances shall be installed in accordance with the applicable requirements of 527 CMR or 248 CMR. The installation of appliances not under the jurisdictional control of 527 CMR or 248 CMR shall conform to the conditions of the manufacturer's listing/ installaion requirements. The manufacturer's operating instructions shall remain attached to the appliance or otherwise be provided to the installer and end-user of such appliances.

FIGURE 3613.6.1 - REDUCED CLEARANCE DIAGRAM



Note:
"A" equals the required clearance with no protection, specified in Table 3613.6.1a. "B" equals the reduced clearance permitted with Table 3613.6.1b. The protection applied to the construction using combustible material shall extend far enough in each direction to make "C" equal to "A".

TABLE 3613.6.1a
STANDARD INSTALLATION CLEARANCES FOR HEATING APPLIANCE[1]

RESEDENTIAL-TYPE APPLIANCES	CLEARANCE (inches)			
	Above Top[2]	From Front	From Back	From Sides
Boilers and Water Heaters:				
Automatic oil or combination gas and oil-	6	24	6	6
Automatic gas-	6	18	6	6
Solid-	6	48	6	6
Electric-	6	18	6	6
Central Furnaces:				
Automatic oil or combination gas and oil-	6	24	6	6
Automatic gas-	6	18	6	6
Solid-	18	48	18	18
Electric-	6	18	6	6
Floor Furnaces:				
Automatic oil or combination gas and oil-	36	12	12	12
Automatic gas-	36	12	12	12
Room Heaters:[3]				
Circulating type:	36	24	12	12
Oil or solid fuel-	36	24	12	12
Gas-				
Radiant or other type:	36	36	36	36
Oil or solid fuel-	36	36	18	18
Gas-	36	36	12	18
Gas with double metal or ceramic back-				
Fireplace stove:	48	54	48	48
Solid fuel-				

For SI: 1 inch = 25.4 mm.

1. Reductions in the required clearance shall be permitted in accordance with Table 3613.6.1b.
2. Same clearances required from top and sides of warm air bonnet or plenum of central furnaces.
3. Room heaters shall be installed on noncombustible floors.

TABLE 1306.1b
REDUCED CLEARANCES WITH SPECIFIED FORMS OF PROTECTION (inches)

TYPE OF PROTECTION	WHERE REQUIRED CLEARANCE WITH NO PROTECTION IS							
	36		19		12		6	
	CLEARANCE MAY BE REDUCED TO							
	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling	Wall	Ceiling
½-inch noncombustible insulation board over one-inch glass fiber or mineral wood butts with no air space	18	24	9	12	6	8	3	4
½-inch-thick noncomnustible insulation board with ventilated air space	12	18	6	9	4	6	2	3
24-gage sheet metal with ventilated air space	12	18	6	9	4	6	2	3
3½-inch thick masonry wall with air space	12	-	6	-	4	-	2	-

For SI: = 1 inch = 25.4 mm, 1 pound per cubic foot = 0.1572 kN/m^3, ?F = 1.8?C + 32, 1 (Btu-inch)/(square foot hour-?F) = 1.721 W/(m-K).

Notes:

1. Required clearances shall be measured as shown in Figure 3613.6.1.
2. The clearance between the appliance and the face of the protection shall not be reduced below that shown in the table. Required clearances between those shown in the table may be interpolated.
3. With all clearance reduction systems using ventilated are space, air circulation shall be provided as described in 780 CMR 3613.6.1.
4. Spacers and ties shall be noncombustible and shall not be used directly behind an appliance or a connector.
5. Mineral wood butts shall have a minimum density of eight pounds per cubic foot and a minimum melting point of 1,500?F.
6. Insulation material shall have a thermal conductivity of 1.0 (Btu-in.)/(sq. ft.-hr?F) or less.
7. A single wall connector passing through the masonry wall shall have at least ½ inch of open ventilated air space between the connector and the masonry.

3613.7.1.1 Additional installation requirements/appliances located in garages: The requirements of 527 CMR or 248 CMR shall be met when fossil fueled heating and/or cooling appliances are to be located in a garage; additionally, all appliances shall be protected from impact by automobiles. Appliances that generate a glow, spark or flame capable of igniting gasoline vapors and located in a garage shall be installed with burners, burner ignition devices, or heating elements and switches at least 18 inches (457 mm) above the floor level or as further required by 527 CMR or 248 CMR when applicable. When such appliances are enclosed in a separate compartment having access only from outside of the garage, such appliances may be installed at floor level, provided that the required combustion air is taken from and discharged to the exterior of the garage.

3613.7.2 Electrical appliances: Electrical appliances shall be installed in accordance with 527 CMR 12.

780 CMR 3613.8 CONTROL DEVICES

3618.8.1 Oil-fired and gas-fired appliances: See 527 CMR or 248 CMR as applicable.

3613.8.2 Electric duct heaters: Electric duct heaters shall be equipped with an automatic reset air outlet temperature-limit control that will limit the outlet air temperature to no more than 200?F (93?C). The electric elements of the heater shall be equipped with fusible links or a manual reset temperature-limit control that will prevent air temperature in the immediate vicinity of the heating elements from exceeding 25?F (121?C).